

Abstract

A compiler that optimizes a program to be compiled includes: an order constraint information obtaining unit that obtains order constraint information defined among a plurality of instructions; an order determination unit that sequentially determines the execution order for each of the plurality of instructions based on the order constraint information; a unit for analyzing the number of registers that analyzes the number of required registers, which is the number of registers that will be required when the instructions with its execution order determined are executed; an instruction detection unit that detects a combination of two instructions, in which one instruction is a determined-order instruction, the other instruction is an undetermined-order instruction, and the order constraint information does not include a constraint that the one instruction should be executed before the other instruction; and an order determination reprocessing unit that, when the number of required registers exceeds a predetermined number, changes the state of the one instruction into the state in which the execution order has not been determined and causes the execution order to be determined so that the one instruction is executed next to the other instruction.